

Artificial Irrigation System in the Reddi kingdom in Medieval Andhradesa

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Abstract :

Reddi kings ruled coastal and central Andhra from A.D.1325 to A.D.1448. First they were the subservient of Kakatiya kings. After the death of Prataparudradeva and the subsequent fall of the Kakatiya Empire, the Reddi chiefs became independent and this led to the emergence of the Reddi kingdom. The Reddi kings provided irrigation facilities to arecanuts. There was no water problem in coastal area except Palnad and Kondavidu in Guntur district. To fulfil this water problem, the kings constructed artificial irrigation works like tanks, wells, and canals. The construction of irrigation works was not only to satisfy the desire of the ruler, but also to increase the economic condition of the state. The wells and tanks were constructed with brick and stone. Wells were dug for every house in Addanki and Kondavidu. The construction of tanks was in great number in Guntur, Nellore and Kurnool districts. The construction of tanks is looked upon as one of the seven meritorious acts which a man ought to perform during his lifetime. The kings not only paid their attention to build the irrigation works but also bestowed great attention on the maintenance and repairs of these irrigation works.

Introduction:

The present paper tries to analyze the contribution of Rēddis to artificial irrigation works in their kingdom. The Rēddi kings ruled coastal and central Andhra for over a hundred years from A.D. 1325 to A.D.1448. It is necessary to know the brief political history of Rēddi kings, because, the economic progress of the people depended very much on the rulers.

The usage of the word Rēddi specifically was first seen in the records made during the Rēnāti Chōla period (seventh century A.D.). There are numerous epigraphical references to Rēddis or Raddis as agriculturists, businessmen and administrative officials (village headman). It is generally agreed that the word Rēddi is related to Rāshtrakūta which itself is taken to be a Sanskritized form of the *Dravidian* word *rattakudi*. This community was variously referred to in the records as *rattadu*, *rattōdi*, *rattagullu*, *rēddi*, etc. *Rattakudi* or *rattagudi* seems to have been made up of two words *ratta* and *kudi*. The latter term conveys the meaning of habitation or settlement. *Rattakudi* may, therefore, be tentatively rendered as a settler in the country or cultivator as suggested by H.K. Sastry.¹ These Rēddis are mentioned in some records in Rayalaseema as donors.² This evidence clearly shows that the term Rēddi denotes some status in the administration. The first of the Rēddi clans came into prominence as feudal lords during the Kākatiya period. After the death of Kākatiya Prataparudradēva and the subsequent fall of the Kākatiya Empire, the Rēddi chiefs became independent and this led to the emergence of the Rēddi kingdom. According to Edgar Thurston,³ Rēddis were the village chiefs and listed them under the section Kāpu. The village chiefs were given the title Rēddi. The Rēddi dynasty was established by Prōlayavēma Rēddi, also known as Kōmativēma. His ancestors served the Kākatiyās as officers in the army. Prōlayavēma Rēddi was part of the group that started a movement against invading the armies of the Delhi Sultanate in 1323 A.D. and succeeded in repulsing them from Warangal. The fall of the Kākatiyā kingdom in 1323 A.D. after being subject to seized by the Tughlaq dynasty, led to a political vacuum in the Andhras. The Islamic conquerors failed to keep the region under effective control and constant infighting among themselves coupled with the martial abilities of the local Telugu warriors led to the loss of the entire region by 1347 A.D.⁴ This led to the raise of Mussunūris and Rēcharlās in the Telangana region, the Rēddis of the *Panta* clan in the coastal region. The Rēddis extended their kingdom from Cuttack, Orissa to the north, Kanchi to the south and Srisailam to the west. The capital of the Rēddi kingdom was Addanki. It was shifted to Kōndavidu and then another branch of Rēddis shifted to Rajahmundry. Prōlayavēma Rēddi's rule was (A.D. 1325-A.D. 1353) characterized by the restoration of peace, patronage of the arts, literature and broad development. Ariana, the translator of the *Mahābhārata*, lived during this period. Prōlayavēma Rēddi was succeeded by Anavōta Rēddi (A.D.1354- A.D.1364) who consolidated the kingdom extensively and established its capital at Kōndavidu in Guntur district.⁵

Anavōta had a son name Kumāragiri but he was very young. Hence, Anavōta's brother Anavēma (A.D. 1364-A.D.1382) came to the throne. He was a great warrior and administrator. Anavēma was successful in recovering his territory from Vijayanagara kings as seen from his Srisailam records of A.D.1377. Kumāragiri Rēddi (A.D.1386-A.D. 1404), the son of Anavōta succeeded his uncle Anavēma. Kumāragiri Rēddi was ably assisted by Kātayavēma Rēddi, his brother-in-law, who was also the Prime Minister and general in the task of preserving the integrity and maintaining the security of the kingdom. But, he deposed by Pēdakōmativēma Rēddi (A.D. 1404-A.D. 1420), who then governed the kingdom. Kumāragiri Rēddi and Kātayavēma Rēddi fled to Rājahundry. The hostility between Pēdakōmativēma Rēddi and Kātayavēma Rēddi continued even after the death of Kumāragiri Rēddi. Kumāragiri Rēddi lost his life in a battle with Pēdakōmativēma Rēddi. Allāda Rēddi, a feudatory of Kātayavēma Rēddi came to the throne of Rājahundry branch of the Rēddis. He placed Kumāragiri Rēddi III, the son of Kātayavēma Rēddi, on the throne of Rājahundry. However, the hostilities between the Rājahundry and the Kōndavidu branches of the Rēddi ruling family continued and this provided a great opportunity to the Vēlamās, Vijayanagara and the Bahmanis, to profit by it. *Vēlugotivārivamsāvali* mentions that the conflict of Kumāravēdagiri and Lingamanaidu, the Vēlama chiefs, with Pēdakōmativēma Rēddi. Thus, checkmated on all fronts, Pēdakōmativēma Rēddi could not achieve his subject of occupying Rājahundry. But in the cultural history of the period, he occupies a unique place. He was a poet and patron of letters and was proficient in the art of music. Pēdakōmativēma Rēddi was killed in a battle of Rēcherlavēlama chiefs. He was succeeded by Rāchavēma Rēddi in A.D.1428. He was weak and the last king of this dynasty. By the way of excessive taxation, he soon became unpopular. According to *Kōndaviti Dandakavile* Rāchvēma Rēddi is an oppressive ruler and he was assassinated by a soldier named Chadarapu Mallayya in A.D.1424., with him the Kōndavidu kingdom disappeared from the political map. The Rēddis of Kōndavidu which was occupied by the Vijayanagara rulers and the Rēddis of Rājahundry occupied by the Gajapatis of Cuttack.

Agriculture was the main occupation or activity of the people. There was not much pressure on land since the population was very small. Every village has some fallow land. It is interesting to note that for taxation, the land was divided into dry, wet and garden and taxed differently. For the development of agriculture, the rulers provided water facilities. Irrigation works had never been

neglected in India. According to Kautilya's *Arthaśāstra* irrigation works are the sources of surplus crops; the result of a good shower is ever attained in the case of crops below irrigation. Irrigation always received great attention from the state in ancient as well as private individuals for the progress of agriculture. It has also religious inviolability, so much so that officials, as well as private individuals, were challenging with one another in their concern to digging tanks, wells, canals, etc. Irrigation works may be classified into two types, natural and artificial. The natural sources of water supply were the rivers and rains. The lands which are irrigated by rivers, rivulets, tanks, wells, etc., are called *nadi-mātrikās* and the lands which purely depend on rains are called nature fed or *dēvamātrikās*. The artificial irrigation works are of three types. They are 1. Wells including *dāruvu* wells on river banks 2. River channels, rivulets, tanks, reservoirs or dams (*sētūs*) formed by building embankments across two hills and 3. streams and canals. The failure of monsoons and the consequential droughts resulted in the construction of various artificial irrigation works from the very early period. The Sātavāhanās, Ikshvākūs, Pallavās Vishnukundīs, Chālūkyās, and Kākatiyās gave importance to build tanks, wells, and canals. The Rēddi kings also gave importance to provide artificial irrigation in their kingdom. During their rule, the king as the head of the state, ruling chiefs, officials, local bodies and individuals took interest to provide water facilities for the encouragement of cultivation, plantation and their daily purpose.

Well Irrigation: Irrigation by wells must produce a high quantity of water during the driest months. Different types of wells are mentioned in *Śilpa – Śāstrās* namely *Kūpa* (well), *Vāpi* (stepped well), *Kunda* (deep pond), *Pushkarini* (shallow – pond), *Tadaga* (lake) and so on. Panini mentioned that the villagers depended for their water supply on wells (*kūpās*) to which were attached *nipanās* or water troughs from which the cattle would drink. Ten varieties of *kūpās* or wells are mentioned according to their size, i.e. *Srimukha* is to be laid out in four *hastās* and *sankara* type to be laid-out in thirteen *hastās*, but all these should be laid circular.⁷ The *Telugu* work *Simhāsanadvātrimsika* gives a list of sources of irrigation and appliances to lift water from a lower level to a higher level, such as *kāluva* (canal), *pāyalu* (branches of rivers), *kollu* (artificial canals of marshy) and *rātnās* (appliances to draw water or water wheels worked with feet).⁸ In black soil, where its depth is moderate and the sub-layer is porous, well-irrigation was also vogue. Generally, well

irrigation was preferred in areas where river irrigation was not present. The Rēddi kings gave importance to digging wells for areca nuts and coconut plantation. With the rivers like Gōdāvāri, Krishna, Penna and their tributaries, tanks, wells, lakes, etc., there was no water problem in the coastal area except Palnad and Kōndavidu in Guntur district. In a Planned area where there was water scarcity well irrigation was in vogue and black cotton fields were supplied with water from the deep wells. A common saying in *Telugu* implies that long ropes were needed for drawing water from wells in Kōndavidu, and the ropes with double that length had to be used to draw water from the wells in Planned.⁹ According to East Godavari District Gazetteer, these wells were known as Reddi wells, built with brick and stone. The wells measured 18x24 ft. and the water level was 6 to 12 ft. Several wells were dug at Aminabad, Addanki, Challagundla, Janapādu, Daida, Satrasala, Karēmpudi, Adoni, Kannalur, Kurnool, Kandukur and Nagaram. Daida and Satrasāla were Buddhist centers also. Wells were dug for every house in Addanki and Kōndavidu under the rule of Prōlayavēma Rēddi. Nellore had fourteen wells including *Vēmalasettibāvi* or *Vēmalanūyi* on the south.¹⁰ At Kōndavidu, the Rēddi kings dug wells like *Kattulabāvi*, *Lankēlabāvi*, *Kanyakalabāvi*, and *Jeddigalabāvi*. *Kattulabāvi* is an ancient *Sivālayam* with great sculpture. As per history, the Kōndavidu Rēddi kings have been deceived by the temple priest at the time of war with the Muslim rulers who came to invade the fort. The priest sided with the Golkonda Nawab; a well is dug on the way to the *darshan* of Lord *Siva* i.e. known as *Kattulabāvi* or *Cheekatikōnēru* or well with swords. War commanders have been eliminated by deceit this way and then lower rank soldiers attacked, thus, ensured success for the enemy. There were many types of wells like *Nadaivāpi* or *Nadabāvi* or *Digudubāvi* (a well having stone step to descend into it), *Lankelabāvi* (a well built with a double line of stones), *Ittikānūyi* (a well built of bricks), *Rajakabāvi* (a well used by washermen), etc. These were sometimes called *Jain* wells, showing the prevalence of Jain faith among people in Amalapuram area of East Godavari district. These wells were constructed with brick and stone. Kommana Sōmayājulu, the Prime Minister of Kōmatirēddi dug freshwater well with stone revetment at Kandukuru,¹¹ and a stepped well at Chundi. Even today, we can see this type of wells being used in the Nagaram and Anantapuram taluks in the East Godavari district. In places where fields lay at higher levels than rivers and tanks, water was supplied to them *doruvu* wells using lifts like *ētām* (*rātnās*) or picottah

through *kapita* or *mōta*. The relics of picottah at Kōndavidu are important for this method of irrigation.

Tank Irrigation: Tanks served as the chief means of irrigation in ancient and medieval Āndhradēsa. The terms *chēruvu*, *kōlanu*, *madugu*, *tatāka*, *kēre*, and *ēri* mean a tank. In some places, due to their enormous size, they were called *ambudhi*, *sāgara*,¹² *samudra*, *mahāpayōdhi*, *vardhi*, *pemjēruvu*, *sarōvara* and because of sanctity, *tirtha*, *kunta* and *gunta* in *Telugu* and *benchi* in *Kannada*¹³ mean a *pond*. Tank irrigation was also practiced by the Rēddi kings. They were built in the upland regions of Guntur, Nellore, and Kurnool districts. Irrigation tanks were especially in use, and they were as a rule constructed in the catchment area in the upland region of hard soil and the land below was utilized for growing rice and garden crops. The construction of tanks is looked upon as one of the seven meritorious acts (*saptasantānās*) which a man ought to perform during his lifetime. A son (the procreation of), a poem (the composition of), a treasure (a hoarding of), a grove (the planting of) a girl to a brāhmana (the marriage of) a temple (the consecration of), and a tank (the construction of), are considered as sacred acts. A few *ślōkās* from *Mahābhārata* cited at the close of an inscription¹⁴ dealing with the building and dedication of the Santānasāgara, explain the merit accrued by digging tanks and spirits live in water; and animals, birds, and human beings drink water from the tanks and so the builders obtain merit equal to that of performing *aśvamēdha* sacrifices, at which their fathers and grand-fathers rejoiced. So, encouraged by sheer motives of humanitarianism besides religious motives, individuals built tanks near temples and in villages. The Pōrumāmilla tank inscription¹⁵ dated 1369 A.D. gives more information about the construction of tanks, hydrology, and methods of water movement. It is a remarkable record which enumerates twelve different and essential *angās* or elements necessary for the construction of a new tank, like hard soil, two projected portions of hills in contact with it, a quarry containing straight and long stones, a gang of men skilled in the art of tank construction and kindred arts. Six faults or *dōśās* are also enumerated which are to be avoided, like saline soil, a tank-bed with elevation in the middle and water oozing from the tank, etc. An inscription from Phirangipuram mentioned that Surāmba or Surāmbika, the queen of Pēdakōmativēma Rēddi (A.D. 1402-1420) built a tank named as Santānasāgara at Phirangipuram in the Narasaraopet taluk of the Guntur district in A.D. 1409. She performed the ceremony of *pratishta* (completion and dedication

to public use) of the tank also called Santānapayōnidhi. The above-mentioned record composed by Srinātha contains a hyperbolic description of the tank, which is stated that its waters were as purifying as those of Ganga, Yamuna, and all other sacred rivers, that it was full of water-lilies which blossomed at the touch of the rays of the moon which was the crest of (the idol of) Śiva established on its bank, that the deafening roar of its waters filled all space, that it was the sporting ground for fish, crabs, and other water animals, and that its waves kissed the sky (v.24).¹⁶ An inscription from Mollēru in the Yellavaram taluk of East Godavari district refers to the construction of a tank, Vēmasamudram at Mollēru¹⁷ by one Vuppala Hanumayya for the merit of his sovereign, Kātamarēddivēmarēddi. Some tanks mentioned in records are: the tank at Vēmavaram¹⁸ which supplied water to the paddy fields, Kōmāragirisamudram at Munjalur,¹⁹ Chōdasamudram (Mōlleru), tank at Baddepūdi, tanks at Lingamgunta, Prōlasamudram, three tanks at Chandī, Malyadri tank near Bhimunikolanu, Bhimasamudram at Vadlakurru, huge tank of Drōnasamudram at Namepādu, tank at Chevaram, two tanks at Marripūdi, Brahmasamudram at Timmāpuram, many tanks at Sattenapalli, Bassamudram near Budapīr, Ganapasamudram and Kuppasamudram, Mahadēvitatāka at Macherla, Chagipōtasamudram at Gudimētta, Mallsamudram and Gandasamudram at Nādindla Rōmpichēruvu alias Pankatakapura at Rōmpicherla, Tamarachēruvu at Pedaganjam, Rudrasamudra and Rattasamudram at Nudurupadu, Virasagaram near Panchadharala, Bhimasamudram at Nidadavole, Viddarajachēruvu at Guntur, tank of Mankaditya and tank of low caste people near Jayatarayanapura *agrahāra*, Koddopaticheruvu at Jalur, tank near Ankepalle built by queen Tippali dēvi, Gangasamudram at Siddhāpuram at Śrisailam, Ambasamudram at Odili and Utukūru at Kanuparti, Ammapudichēruvu, Yekarajuchēruvu and Pulichēruvu, tank at Chilamakur, Svarnalachēruvu and Tamaramadugu at Nellore, Rachēruvu and Vēlpulachēruvu at Kavali, Chintachēruvu and Elamanchigunta at Timmasamudram, Tande tank at Ayyavaripalle, Diviyareri alias Kamalamahādēviputtēri at Chēpalapalle, Tondaiman tank, a huge tank at Kondapalle, etc.²⁰ The tanks were built not only by the royal but also by the private persons. A merchant, Kāvuri Vallabhasetti, built a tank called Gōvardhanasamudram at Appāpuram in Narsaraopet taluk of Guntur district and endowed it to the local temple²¹ with four and a half *putti* of land with the permission of king Pēdakōmativēmarēddi. Srigrirēddi built many thousand huge tanks, which were useful to the public, as deep as the ocean, and famous for producing plenty of crops... His

son Rācavēma caused to build a tank at Baddēpūdi.²² Irrigation tanks were especially in use, and they were as a rule constructed in the catchment area in the upland region of hard soil, and the land below was utilized for growing rice and other crops.

Canal Irrigation: Canals were also used for irrigation especially in low-lying tracts. The terms *kōdu*, *peddakōdu*, *kulya*,²³ *kruchmanu*, *gartta*, *kāluva*, *kālvai* or *kal* meaning canals, *ūtakāluva* meaning an oozing canal, *uppumgāluva*,^{24a} a canal containing saline water *adusumgāluva*,²⁵ a dirty water canal, *vāgu* or *vangu* and *vanka*, a stream, which occur in the records and copper plates as making the border limits of individual fields, show that they were also used important means of irrigation. The charitable persons dug out and gifted canals to the temples or the money gifted by private persons were invested in the digging of these canals from the beds of rivers and rivulets, and the additional yield coming from the lands was used towards the upkeep of the stipulated services in the temple. *Bhimēśvarapurānam* mentioned about the canals. *Kūchinēnikāluva*, *Prōlirēddikāluva*, *Rēddikāluva*, *Dadlakāluva*, *Mēdavirupulagalva*, *Mād irēddikāluva*, etc. are some of the canals dug in this period. The canals were dug from the rivers filled the tanks and these tanks were used as the main source of water supply to the farms using branch channels. A streamlet Pāyani was dug very close to the river Godavari. An epigraph from Bhimavaram states that Yaramanāyi dug a channel and named as *Yēluturitinādu*, from the river Ēla near Tungabhadra which was a tributary of Krishna. A canal named as *Sadāsivakōnda* dug from the river Penna. Another canal known as *Allādavalla kōnēru* dug from the river Vamsadhara. The Nāgulēru river, which flows through Palnādu irrigated the land. Rācavēma, the son of Pēdakōmativēmarēddi, got a channel called Jaganobbaganda *kāluva* dug as a feeder to the tank, Santānavardhi, which his mother Surāmba had dug.²⁶ This tank is no doubt, the same as that referred to the Phirangipuram inscription. Kōndavidu's record mentions that Tungabhadra was a branch of the Krishna river. It has ceased to exist as a river after the construction of the Krishna anicut and its course is marked by the main and the Kommanur canals of the Guntur taluk and the drain which is in continuation of the latter.²⁷ The Vēmavaram grant of Allayavēmarēddi dated, 1434 A.D. mentioned the Tulyabhāga is one of the main channels leading off from lower Godavari river. According to H. Morris,²⁸ it “seems to have been originally a natural hollow, of which advantage was taken to form the bed of an irrigational channel by cutting ahead to it from the river, and throwing earthen banks across it at various places to raise the water to the necessary

height for commanding the adjacent country. It led off from the intended main feeder about a mile below the head-sluice [of the great dam of the Godavari], and conveyed water to the Kopavaram, Bikkavolu and Ramachandrapuram taluks, terminating in the salt-water creek which flows in from the sea near cocanadu.” It shows that it leads off the Godavari a short distance south of Daulēśvaram and runs more or less eastwards until it comes a little to the east of Anaparti. A record from Kodur in Gudivada taluk of Krishna district mentioned (a pond named as Alligunta) two local streams named as Damkēru and Vannēru. It also mentioned the Pulleru, which appears to be present representative of the river Mālāpahāri.²⁹ Channels from the rivulets Pālēru and Vārēru both tributaries of the Manēru, flowing into the Krishna. The big streams like Dusanēru, Buruguvayaru, and Vallapakammanēru coursing in the Pithapuram taluk of East Godavari district, Mālāpahāri or Pullēru, Dankēru and Vannēru, Tungabhadra in the Bapatla taluk of the Guntur district, Vamsadhara channel at Kollipāka, Nandivarma channel to Podasamudram tank, Indium channel at Pertrala Rayasahasramalla channel named after a title of Ambadēva by Peddināya at Lēpāka and Gandependēra channel at Tādapāka, etc., that are referred to in some of the copper plate grants and lithic records, might have been exploited as means for irrigating the lands. Kātamarēddi of Prōli had a role in constructing the former channel from Antarganga and the latter at Tādapāka. Many channels at Prōli were the work of Kātamarēddi. At Nellore, many canals were dug from Pennar and at Chepalapalle a big channel named after Kamalamahādēvi were built. The sources of this period mention many of them, which formed the boundaries of villages and *agrahārās*. An epigraph mentions that several rivulets like Gundēru, Pāliēru, and Madivangu, which formed the border limits of Tripurāntakam. During the Rēddi period, many channels were dug from the rivers like Vamsadhara, Sapta-Godavari, Krishna, Gundlakamma, and Pennar to provide irrigation facilities for the development of agriculture. Evidence to ponds is fewer than wells in records. Many public ponds or baths were built in the reign of Kumāragiri, at Kōndavidu and other places. The record from Nudurupādu figures a pond³⁰ at Konidena that was dug by a minister. Possibly several *guntās* figuring in records are ponds, as terms like *samudram* and *tatāka* apply to tanks.

A few reservoirs are also mentioned in the records of Rēddi kings. They are: the reservoir near Kandukur was dug by the minister Kommana, a reservoir at the hill Bellamkōnda and an artificial reservoir halfway up to the hill to Vinukonda.³¹ As regards lakes, Kollēru was the largest

freshwater lake.³² There was a huge artificial lake at Dharanikōta. Sluices to the tanks also for the supply of water to lands find mentioned in records. They are: a sluice in the field near Pithapur, a sluice to the Pōdasamudram tank by Nandivarma and a sluice to the tank at Tōndamanād by Tikkyadēva.³³

The role played by the Rēddi kings, their family members and the officers of the state in reclaiming the land for agricultural purposes and providing them with irrigation facilities. According to the records, the forests and rocky soils were more than the agricultural land. These areas were destroyed and then converted into cultivable lands. There were great forests both in coastal plain and in mountainous regions. The great tract of country on the side of the river Pampa around Mummavidu of the East Godavari district was a great jungle. There were great bilva forests on the banks of the river Tulyabhāga, which runs through the present Ramachandrapuram taluk of East Godavari district. Agriculture was, therefore, limited in extent and confined to the regions devoid of forests. The irrigation facilities were developed in *agrahārās* by the rulers. Unfortunately, very little information about this type of land was mentioned in the records of Rēddis kings.

The Rēddi kings not only paid their attention to build the irrigation works but also bestowed great attention on the maintenance and repairs of these irrigation works. The digging of tanks and canals naturally invested the state with the duty of their maintenance and repairs. Several records of Rēddi kings reveal *daśabandha* or *daśabandham*, means making an *inām* (gift) about one-tenth of irrigated land under particular tank or canal to the person who undertakes the construction of a tank, and also the contribution of one-tenth of the production of each measurement of grain from cultivated land in the catchment area was meant for the up keeping of a tank. Such encouragement took the form of either *daśabandha* or *kattu kōdage* grants, according to which the person who undertook or executed the work was given a piece of tax-free land for tank which he constructed.³⁴ Baden Powell, which enumerating the nine kinds of *ināms* classified according to their object, or purpose, defined *daśabandham* as an *inām* given for the maintenance and repairs of irrigation works in the district of Krishna and Nellore.³⁵ Precautionary measures were taken to reduce the loss due to flooding of rivers and over-flowing tanks. In such adverse circumstances, the level of the embankment was raised. At Kōndavidu on the top of a hill, there were many springs and tanks

one leading into other, so that when the first was filled the water flowed into the second,³⁶ then the third. As a result, there was no overflowing and flooding of tanks. This type of tank was mentioned in the records of Rēddis. Ex: Vēmavara tank, Kōmaragirisamudram, Santānasāgara, etc. This system of irrigation during the reign of Rēddis is similar to the irrigational system of the Vijayanagara period. When the tank at Utukūru, built by the Rēddis of Odumūr became dilapidated, it was repaired by Ambadēva and named as Ambasamudram after him.³⁷ The expenditure on irrigation works either construction or repairs during this period were not mentioned in the records. In our imagination, they spent a large amount on irrigation works. A record from Amarabad village dated thirteenth century A.D. belonged to the Kākatiya period states that a tank belonging to the temple of Svayambhudēva was repaired by way of raising its bund and increasing the capacity by a certain Mallisetti. Thereby, he irrigated new land and paid 30 *mādās* towards the cost of the land, 25 *mādās* for acquiring *niri-mudi*, the right of using water cess, all the three items being paid to the temple treasury.³⁸ It is interesting to note here that a private individual on his own accord raised the tank bund and got the land irrigated paying the amount to the temple under the above heads. The individual, as well as the owner of the tank, i.e. temple, are benefited. This is an appropriate example to show how irrigation works were carried out in those days. Like this, in the Rēddi period charitable persons also dug out and gifted canals to the temples or the money gifted by private persons was invested in the digging of these canals from the beds of rivers and rivulets, and the additional yield coming from the lands was used towards the upkeep of the stipulated services in the temple. Srinātha's *Bhimēśvarapurānam* mentioned that the lands of the Brāhmin *agrahārās* were irrigated by *Krōppumgaliyālu* (dug out canals).³⁹

The people were appointed to perform the duties of distribution of water under the tanks during the Kākatiya period. The persons who belonged to the specific communities such as *vaddaras*, *peddabōyās* and *upparās* were engaged in doing the manual work of tanks. These persons were exempted from the payment of the taxes. One *kuncha* on every *putto* was to be given to the above-mentioned communities. These persons had the privilege of grazing their cattle and sheep without paying *pullari* to the state. But, the records of Reddi kings did not give information about the appointment of people to look after the irrigation works.

If there were any disputes between people or different villages, regarding the distribution of water, they used to settle them politely with the help of mediators. Generally, the decision of a mediator was accepted by the villages. When the disputes arose between two or more villages, they were settled in the presence of the *mahāpradhāni* or the leading men of both villages. When the local governing body failed to settle the disputes, the kings used to interfere to settle the disputes. But unfortunately, the records of Rēddis did not mention the disputes.

To conclude, based on the epigraphical evidence the Rēddis gave much importance to well and tank irrigation. An artificial irrigation system was developed during the Rēddi period for areca nuts and coconut plantations. The wells and tanks were constructed with brick and stone. Unfortunately, the epigraphical records did not mention much about the good irrigation. The construction of tanks was in great number in Guntur, Nellore and Kurnool districts to distribute the water. In the Rēddi period, not only the rulers but also the officials and private individuals took interest to provide water facilities. *Dasabandha* or *dasavandha* or *dasavantam* means one-tenth of a tax or an allowance of land or revenue given as compensation for the construction of a tank or well or channel. The construction of irrigation works was not only to satisfy the desire of the ruler but also to increase the economic condition of the state.

IRRIGATION WORKS IN REDDI PERIOD

Sl.No.	Find Spot of the Inscription	Date	Name of the Builder/ Donor	Name of the King	Type of Irrigation Work	Place where The Irrigation Work is Located	Type of Donation Mentioned	Reference
1	Uppungunduru, Nellore dist.	A.D.1218-19	Tāmasetti	Not mentioned	Tada tank	Uppungundurupalli	200 kuntas of wet land	CICPSND , III, p.1128
2	-	A.D.1409	Suramba	Pedakomativemareddi	Santānasāgara tank	Phirangipuram, Narasaraopet taluk, Guntur dist.	-	El. XI. p.314
3	Phirangipuram, Sattanapalli taluk, Guntur dist.	A.D.14-15	Suramba	Rachavemareddi	Santānavardhi	Phirangipuram	-	Ibid.pp.314-5
4	Aminabad, Sattanapallitaluk, Guntur dist.	A.D.1415	-	-	Jaganobbanganda kalva	Aminabad, near Phirangipuram	-	Ibid.p.19
5	Old Chundi, Kandukur, Prakasam dist.	A.D.1430-31	Komma Somayajulu (prime minister)	Komatireddi	A fresh water well	Kandukur	-	CICPSND.,I.pp.496-7
6	-	A.D.1430-31	-	-	Prolasamudram	-	2 marutus of wet land	Ibid.
7	Yirepalli, Nellore dist.	-	-	-	Tank	Yirepalli	100 kuntas of land	Ibid. II. p.213
8	Molleru, Yellavaram taluk, East Godavari dist.	-	Vuppala Hanumayya	Katamareddi	Vemasamudram	-	-	ARSIE 1923/24, No.238
9	Vemavaram	A.D. 1434	-	Allaya vema reddy	Tulyabhaga channel	-	-	-
10	-	-	Kavurivalabhasetti	Pedakomativemareddi	Govardhana samudram	Appapuram, Narasaraopet taluk, Guntur dist.	41/2 putti of land	SII. X. No.573
11	Lepaka		Peddinayaka		Rayasahasramalla channel			JAHRS XXXIX p.191
12	Kondapalli				A huge tank			Ibid. P.190
13	Ankepalle		Queen Tippali devi		Tank			Ibid.

The above table shows the different types of irrigation works that were built during the rule of the Reddi kings. Ten inscriptions mention the location of the irrigation works where they were constructed. Three inscriptions did not give clear evidence about the location of the irrigation works. Seven inscriptions are dated, thus indicating the dates of the construction of the irrigation works, while the rest of the inscriptions are undated. Eight inscriptions are mentioned the names of the builders who have taken much care for constructing the irrigation works, while the rest of the four inscriptions are not mentioned the builder's names. Only six inscriptions give the details of the names of the rulers. During the Reddi period, the well and tank irrigation systems were well developed. But unfortunately, the epigraphical records did not refer to the good irrigation system. Eight records refer to the tank irrigation system. Lands were also granted for the construction of irrigation works during this period.

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